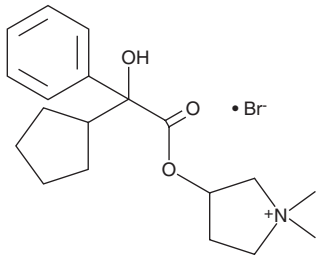
PRODUCT INFORMATION

Glycopyrrolate

Item No. 16498

CAS Registry No.: 596-51-0
Formal Name: 3-[(2-cyclopentyl-2-hydroxy-2-phenylacetyl)oxy]-1,1-dimethyl-pyrrolidinium, monobromide
Synonyms: AHR 504, NSC 250836, NSC 251251, NSC 251252
MF: $C_{19}H_{28}NO_3$ • Br
FW: 398.3
Purity: ≥95%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Glycopyrrolate is supplied as a crystalline solid. A stock solution may be made by dissolving the glycopyrrolate in the solvent of choice. Glycopyrrolate is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of glycopyrrolate in these solvents is approximately 30 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of glycopyrrolate can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of glycopyrrolate in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Glycopyrrolate is an antagonist of muscarinic acetylcholine receptors (mAChRs; K_is = 0.42, 1.77, 0.52, 0.78, and 1.29 nM for the M_1-M_5 receptors, respectively).[1] It induces relaxation of precontracted isolated human bronchi when used at concentrations of 0.01, 0.1, or 1 µM.[2] Glycopyrrolate reduces post-prandial gastric antral motility in dogs when administered at a dose of 0.01 mg/kg.[3] It inhibits salivation in a rat model of sialorrhea induced by pilocarpine with an ED_{50} value of 0.74 µg/kg.[2] Formulations containing glycopyrrolate have been used in the treatment of sialorrhea, peptic ulcers, and chronic obstructive pulmonary disease (COPD).

References

1. Gavaldà, A., Ramos, I., Carcasona, C., *et al.* The *in vitro* and *in vivo* profile of aclidinium bromide in comparison with glycopyrronium bromide. *Pulm. Pharmacol. Ther.* **28(2)**, 114-1121 (2014).
2. Rogliani, P., Calzetta, L., Ora, J., *et al.* Pharmacological assessment of the onset of action of aclidinium and glycopyrronium versus tiotropium in COPD patients and human isolated bronchi. *Eur. J. Pharmacol.* **761**, 383-390 (2015).
3. Burger, D.M., Wiestner, T., Hubler, M., *et al.* Effect of anticholinergics (atropine, glycopyrrolate) and prokinetics (metoclopramide, cisapride) on gastric motility in beagles and labrador retrievers. *J. Vet. Med. A Physiol. Pathol. Clin. Med.* **53(2)**, 97-107 (2006).

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